

## NORTH PACIFIC OCEAN.

By WILLIS E. HURD.

Generally speaking, the weather over the North Pacific Ocean during January was more disturbed than during the previous month. Extreme storm conditions, however, were not so prevalent, and only one report of a wind velocity attaining hurricane force has been received. That velocity occurred on the 3d of the month, near the 44th parallel, 162d meridian of east longitude. Over the northern steamship routes much snow fell, frequently observed as heavy. Near midnight of the 10th, when near latitude 43° N., longitude 158° E., the American S. S. *West Kader* encountered very heavy snow while in the calm center of a storm. At its heaviest, 4 inches fell in the course of 20 minutes.

At Honolulu conditions were quite different from those of December. The weather was generally cloudy, and rain, frequently heavy, fell on all but two days. In contrast to the abnormally low wind velocity of the previous month, January had the highest average wind velocity, 11.7 miles per hour, in the records of the station. A storm which swept the Hawaiian Islands from the morning of the 13th until the night of the 16th caused considerable damage. The highest velocity at Honolulu was at the rate of 56 miles per hour, which was 8 miles higher than the previous record. On the morning of the 14th two light earthquake shocks were experienced during the height of the storm.

High pressure covered the China coast during the greater part of the month, thereby causing a strong prevalence of the northeast monsoon. Two storms, however, are known to have issued from this area, entering the sea, one on the 7th, the other on the 14th. From the 1st to the 3d the steep gradients between the Manchurian HIGH, with a crest of 30.87 inches, and the moderately deep depression of a cyclone central east of Sakhalin, caused strong gales over Japan and the vicinity.

On the 2d there were apparently three centers of cyclonic activity along or near the 50th parallel, stretching from coast to coast. The low pressure trough was persistent for several days. During this period a number of vessels, eastward bound, encountered rough weather along the northern routes, more particularly west of the 180th meridian. The heaviest gales occurred on the 3d and 4th, and velocities of force 8 to 10 were widespread. The Canadian Pacific S. S. *Empress of Australia* reported a southwest hurricane at noon of the 3d, as previously noted. Pressures over a wide area were unusually low. Second Officer Parker, of the British S. S. *Talithybius*, Yokohama toward Victoria, said in this respect:

A very marked feature of our passage has been the exceptionally low reading of the barometer, from about longitude 162° E. up to about 140° W., where a steady rise started. With the exception of one gale, the weather we experienced was comparatively fine from the 180th meridian, and not what we might have expected from so low a barometer. Our lowest reading (corrected) was 28.39 inches, in latitude 46° 16' N., longitude 165° 56' E., on the 3d.

Early on the morning of the 3d the Canadian S. S. *Canadian Winner*, while in nearly the same position, reported a corrected pressure reading of 28.26 inches, the lowest noted on the Pacific for the month.

The Asiatic cyclone of the 7th was causing gales over Japan on the 8th. On the 9th and 10th the storm moved northeastward, and while it gave fresh gales to shipping southward of the Aleutians during those dates, it finally disappeared by entering the strong LOW central on the 11th over the lower reaches of Bering Sea.

The storm that left China on the 14th was attended by gales over Japan and adjacent waters on the 15th. Two Japanese steamships, eastward bound from Yokohama, were in this storm on that date, but reported no higher winds than force 9. One, the *Tokiwa Maru*, was in latitude 37° 57' N., longitude 145° E., with pressure of 29.10 inches, wind from the south. The other, the *Korea Maru*, in latitude 34° 41' N., longitude 140° 38' E., had a southwest gale, with pressure of 29.40 inches. The storm seems to have moved northeastward, like its predecessor, and merged with the Aleutian low.

In addition to the continental storms and the perturbations of the Aleutian low, two or three oceanic depressions, or storms, moved into the field of observation from lower latitudes. The first was that of the 13th, which swept the Hawaiian Islands with an intensity unusual for that area. The pressures were not especially low, the minimum at Honolulu being 29.68 inches on the 14th, and no other pressures as low being observed at this time by vessels to the southward of the 40th parallel in this vicinity. The highest wind force observed was 10 from the north, noted by the American S. S. *City of Los Angeles*, on the 14th, in latitude 22° 40' N., longitude 155° W. This storm, by the afternoon of the 15th, had moved northward and lost its identity in the low then covering the Gulf of Alaska.

On the 20th the pressure at Honolulu had again become moderately low, though no storm conditions of moment developed. About the 22d a depression appeared off the upper California coast, and another was found to the westward of Hawaii. On the 25th pressure was low at Midway Island. The relationship between these depressions and that over Hawaii on the 20th, while possible, is in neither case assured.

The Mexican and Central American coast region was generally quiet throughout the month, with few gales reported. The winds were mostly from westerly to northerly directions. Strong northers occurred over the Gulf of Tehuantepec, particularly on the 18th, 19th, and 20th.

An examination of the more permanent pressure elements shows the eastern North Pacific HIGH to have been quite firmly entrenched from the 1st until about the 14th. Following the Hawaiian storm of the 14th, pressure became high over and to the westward of the islands on the 16th. This anticyclonic condition gradually spread eastward, as storm conditions receded, till by the 18th it was once more established along the California-Hawaiian routes. A storm, built up in this area on the 21st and 22d, passed into the California coast on the 23d, and from then until the close of the month the HIGH dominated the weather conditions over most of the eastern Pacific except the Gulf of Alaska.

The Aleutian low exhibited its usual fluctuation in movement and intensity. It was quite strong over the Gulf of Alaska during the greater portion of the month, and over the western Aleutians during much of the early half. Offshoot storms from the gulf low entered the Canadian mainland on the 2d, 7th, 11th, 16th, and 27th. A mid-Pacific high pressure area bulged into the Aleutian low region in the neighborhood of Dutch Harbor during much of the month from the 13th to the 26th.

Pressure conditions over the eastern portion of the ocean, as shown by observations at the island stations, were, in general, the reverse of those in the preceding month. At Dutch Harbor, where in December there was a deficiency of 0.15 inch, pressure rose to normal, or approximately 29.71 inches, based on p. m. observations. The net rise was 0.31 inch. The highest pressure recorded was 30.46 inches, on the 20th; the lowest, 29.88 inches,

on the 11th. Absolute range, 1.58 inches, as compared with 1.46 inches in December. At Midway Island the average pressure was 30.11 inches, or 0.11 inch above the normal, being a net rise of 0.23 inch. The highest was 30.38 inches, on the 9th; the lowest, 29.82, on the 25th. At Honolulu the average pressure was 29.98 inches, or some 0.04 inch below normal. This was 0.10 inch below the average for December. The highest pressure, 30.16 inches, occurred on the 16th; the lowest, 29.68, on the 14th.

Fog seems to have been less prevalent in January than in December. The only report of its occurrence in east longitude was on the 17th, in latitude 28° N., longitude 163°. In west longitude fog was observed on the 18th in latitude 41° N., longitude 172°, and by one vessel sailing along latitude 38° N. between longitudes 162° and 148° W., during the 26th to 29th. Fog occurred along the American coast, more particularly south of the 34th parallel, on several days, as indicated by ships' reports. It was observed in the neighborhood of San Pedro on the 17th, 18th, 21st, and 22d, and as far south as latitude 24° N., longitude 112° W., on the 7th and 8th.

#### NOTES ON WEATHER IN OTHER PARTS OF THE WORLD.

*Nova Scotia.*—ST. JOHNS, N. B., January 26.—Huge snow drifts blown in the gale that followed last night's severe snow and sleet storm, blocked rail traffic in this section to-day and several train trips were canceled.—*New York Post*, January 27, 1923.

*Halifax*, January 26.—The British freighter *Cairnmona*, which left Leith for Portland, Me., January 16, has been caught in a great ice field off Cape Race, according to a radio message from the steamer to the marine

and fisheries department. The message sent yesterday afternoon and signed by Captain Berlin, said the ice field extended north and south as far as the eye could reach and appeared to be about 18 miles across east and west. *New York Post*, January 27, 1923.

*France*—CANNES, January 5.—Unprecedented cold weather gripped the Riviera to-day, which caused hundreds of society folk wintering here to send home for heavy clothes.—*Washington Times-Herald*, January 6, 1923.

PARIS, January 9.—The Seine, which twice this winter has threatened to repeat the disastrous flood of 1910, is rising again and some alarm is felt unless the rains cease.—*Binghamton Morning Sun*, January 10, 1923.

PARIS, January 18.—The first snow of the season fell in Paris to-day. It was a light fall, coming after the two-day cold wave that now prevails over France, with temperatures ranging around freezing.—*Chicago Evening Post*, January 18, 1923.

*Jamaica.*—KINGSTON, January 26.—The northern and Central parishes have been visited by strong winds and heavy rains, which have caused considerable damage to the banana plantations and have seriously imperiled the next crop.—*Chicago Daily News*, January 26, 1923.

*Hawaii.*—HONOLULU, January 15.—A howling 55-mile gale, the stiffest ever recorded in the islands, accompanied by two earthquake shocks, swept and rocked Hawaii yesterday, last night and early this morning, causing at least one death.—*Washington Post*, January 16, 1923.

*Argentina.*—BUENOS AIRES, January 24.—Buenos Aires to-day sweltered under a temperature of 104° F., which was accompanied by an extraordinarily hot wind, not unlike a simoon. There were numerous prostrations. The temperature was the highest recorded here in 15 years.—*New York Herald*, January 25, 1923.

### DETAILS OF THE WEATHER IN THE UNITED STATES.

#### GENERAL CONDITIONS.

By ALFRED J. HENRY.

The outstanding feature of the month was the high temperature for the season that prevailed in all parts of the country except New England and along the middle Pacific coast. An unusually large number of cyclonic storms passed across the country, some of which developed greatly in intensity off the Canadian Maritime Provinces. As a consequence the weather was cold and stormy in New England with considerable snow in strong contrast to the weather elsewhere in the United States.

Precipitation was slightly below the normal for the country as a whole, although no marked deficits occurred in any part of the country.

#### CYCLONES AND ANTICYCLONES.

By W. P. DAY.

Cyclonic activity was above the average during the month of January, if one considers merely the number of high and low pressure areas which crossed the field of observation. However, severe winter weather was confined mostly to the northern portion of the Atlantic

States. The stormy weather in New England and New York was caused by a frequent development of important secondary storms off the New Jersey coast, bringing high northeasterly winds, often with heavy snow, and followed by sweeping cold waves. Anticyclones caused by outflowing polar air (Alberta and Hudson Bay HIGHS) generally remained north of latitude 40° N., while the built up HIGHS from the Pacific moved in a group much farther south. Tables showing the number of cyclones (LOWS) and anticyclones (HIGHS) by types follow:

Cyclones.	Al- berta.	North Pa- cific.	South Pa- cific.	North- ern Rocky Moun- tain.	Colo- rado.	Texas.	East Gulf.	South At- lantic.	Central.	Total
January, 1923.....	8.0	2.0	2.0	1.0	2.0	1.0	.....	3.0	2.0	21.0
Average number, 1892-1912, in- clusive.....	4.7	2.5	0.9	0.4	1.4	1.5	0.4	0.4	0.5	12.7

Anticyclones.	North Pacific.	South Pacific.	Al- berta.	Plateau and Rocky Moun- tain region.	Hudson Bay.	Total.
January, 1923.....	1.0	6.0	6.0	3.0	3.0	19.0
Average number, 1892-1912, inclusive.....	0.8	0.6	5.5	1.7	0.4	9.0